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In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

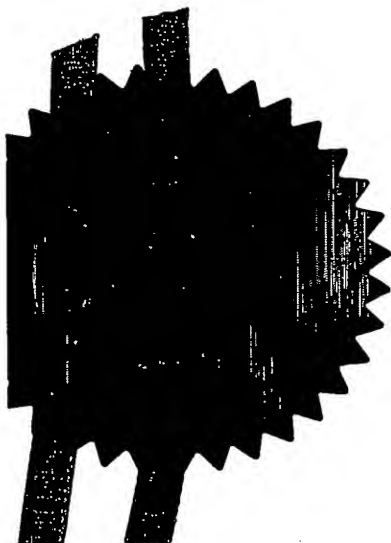
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Signed

*A. B. Jones*

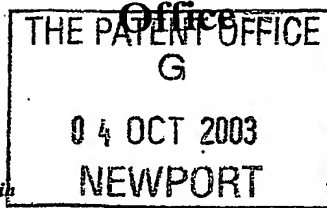
Dated 15 July 2004



The  
Patent

06OCT03 E842245-5 D02898  
P01/7700 0.00-0323275.8

Patents Act 1977  
(Rule 16)



The Patent Office

Cardiff Road  
Newport  
South Wales  
NP10 8QQ

**Request for grant of a patent**

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

1. Your reference C4331(C)/TC 4 OCT 2003

2. Patent application number 0323275.8  
(The Patent Office will fill this part in)

3. Full name, address and postcode of the or of each applicant (underline all surnames)  
UNILEVER PLC  
UNILEVER HOUSE, BLACKFRIARS  
LONDON, EC4P 4BQ

Patents ADP number (if you know it)

50426956002

If the applicant is a corporate body, give the country/state of its incorporation

UNITED KINGDOM

4. Title of the invention BLEACHING COMPOSITION

5. Name of your agent (if you have one) ELLIOTT, Peter William  
"Address for Service" in the United Kingdom to which all correspondence should be sent (including the postcode)  
PATENT DEPARTMENT, UNILEVER PLC  
COLWORTH HOUSE, SHARNBROOK  
BEDFORD, MK44 1LQ

Patents ADP number (if you know it)

162803

6. Priority: Complete this section if you are declaring priority from one or more earlier patent applications, filed in the last 12 months.

Country	Priority application number (if you know it)	Date of filing (day / month / year)

7. Divisionals, etc: Complete this section only if this application is a divisional application or resulted from an entitlement dispute (see note f)

Number of earlier application	Date of filing (day / month / year)

8. Is a Patents Form 7/77 (Statement of inventorship and of right to grant of a patent) required in support of this request?

Answer YES if:

- a) any applicant named in part 3 is not an inventor, or
- b) there is an inventor who is not named as an applicant, or
- c) any named applicant is a corporate body.

Otherwise answer NO (See note d)

YES

## Patents Form 1/77

9. Accompanying documents: A patent application must include a description of the invention. Not counting duplicates, please enter the number of pages of each item accompanying this form:

Continuation sheets of this form

Description 25

Claim(s) 3

Abstract 1

Drawing(s)

10. If you are also filing any of the following, state how many against each item.

Priority Documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature(s)

*Leonie Watkinson*

Date: 03/10/03

Leonie WATKINSON, Authorised Signatory

12. Name, daytime telephone number and e-mail address, if any, of person to contact in the United Kingdom

Trudi Clark (01234) 22 2360  
trudi.clark@unilever.com

### Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

### Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 500505.
- Write your answers in capital letters using black ink or you may type them.
- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.
- If you have answered YES in part 8, a Patents Form 7/77 will need to be filed.
- Once you have filled in the form you must remember to sign and date it.
- Part 7 should only be completed when a divisional application is being made under section 15(4), or when an application is being made under section 8(3), 12(6) or 37(4) following an entitlement dispute. By completing part 7 you are requesting that this application takes the same filing date as an earlier UK application. If you want the new application to have the same filing date as an earlier UK application, you should also complete part 1 of the accompanying form.

BLEACHING COMPOSITION

## FIELD OF INVENTION

This invention relates to the enhancement of bleaching  
5 compositions that are substantially devoid of peroxy species.

## BACKGROUND OF INVENTION

The use of bleaching catalysts for stain removal has been  
10 developed over recent years. The recent discovery that  
some catalysts are capable of bleaching effectively in  
the absence of an added peroxy source has recently  
become the focus of some interest, for example:  
WO9965905; WO0012667; WO0012808; WO0029537, and,  
15 WO0060045.

The shelf life of a product may be regarded as the period  
of time over which the product may be stored whilst  
retaining its required quality. A satisfactory shelf  
20 life is in many instances a crucial factor for the  
success of a commercial product. A product with a short  
shelf life generally dictates that the product is made in  
small batches and is rapidly sold to the consumer. It is  
also a concern to the owners of a brand with a short  
25 shelf life that the consumer uses the product within the  
shelf life otherwise the consumer may be inclined to  
change to a similar product of another brand. In  
contrast a similar product with a long shelf life may be  
made in larger batches, held as stock for a longer period  
30 of time and the period of time that a consumer stores the  
product is not of a great concern to the owners of a  
particular brand.

It is an object of the present invention to provide an air bleaching composition that has improved storage properties.

5 SUMMARY OF INVENTION

We have found that some perfume components degrade per se and reduce the activity of bleaching catalysts over a period of time. We have found that by carefully selecting certain perfume components the stability of a bleaching  
10 composition, which is substantially devoid of a peroxygen bleach or a peroxy-based or peroxy-generating bleach system, is improved. The present invention is applicable to both granular and liquid formulations. However, the present invention has particular utility in liquid  
15 bleaching compositions.

The present invention provides for a bleaching composition that comprises a perfume component that does not substantially reduce the activity of a transition  
20 metal catalyst that functions as described herein.

The present invention provides a liquid bleaching composition comprising:

25 A liquid bleaching composition comprising:

(a) an organic substance which forms a complex with a transition metal for bleaching a substrate with atmospheric oxygen, the bleaching composition upon  
30 addition to an aqueous medium providing an aqueous bleaching medium substantially devoid of a peroxygen bleach or a peroxy-based or peroxy-generating bleach system.

(b) between 0.001 to 3 wt/wt % of a perfume composition;  
and,

(c) the balance carriers and adjunct ingredients to 100  
5 wt/wt % of the total bleaching composition,

wherein the bleaching activity of the beaching  
composition is greater by a factor of at least 10, in  
comparison to a same bleaching composition in which a  
10 molar equivalent amount of citronellal is present as the  
perfume composition, after a period of storage at 37 °C  
for 14 days as measured by exhibited bleaching activity  
of the transition metal catalyst towards acid blue 45 in  
the presence of hydrogen peroxide.

15

Alternatively, beta-carotene may be used as the monitor  
to measure activity of the catalyst. In instances where  
the transition metal catalyst exhibits only measurable  
bleaching activity via air rather than with added peroxy  
20 species, in particular hydrogen peroxide, beta-carotene  
may be used to determine the relative activity of the  
transition metal catalyst.

The factor is at least 12, most preferably 15.

25

Preferred perfume components may be selected from the  
group consisting of: Alpha demascone, Delta demascone,  
Iso E super, Cinnamic aldehyde, Hexylcinnamic aldehyde,  
Aldehyde butylcinnamic, benzaldehyde, anisique aldehyde,  
30 Linalol, Tetrahydrolinalol, Undecavertol, Geraniol,  
Nerol, Citronellol, citral, Oxyde de Rose, Geranyl  
acetate, Citronellyl acetate, Coumarine, Linalyl acetate,  
Geranyl nitrate, Citronellyl nitrile, Cinnamonnitrile, and

Citronitrile, Aldehyde Amylcinnamique,  
Methylantranilate, di-Ethyl-Antranilate, Methyl-n-  
Acetylantranilate, Diphenyloxide, Verdox, Benzylacetate,  
Diola, Orange Cristals, Peonile, Clonal, Limonene,  
5 Camphor, Anthranilate, Di-isobutyl-Antranilate, Verdyl  
Acetate, pinane, veloutone, alpha-methylionone, and  
damascenone.

The term "substantially devoid of a peroxygen bleach or a  
10 peroxy-based or peroxy-generating bleach system" should  
be construed within spirit of the invention. It is  
preferred that the composition has as low a content of  
peroxyl species present as possible. It is preferred that  
the bleaching formulation contains less than 1 % wt/wt  
15 total concentration of peracid or hydrogen peroxide or  
source thereof, preferably the bleaching formulation  
contains less than 0.3 % wt/wt total concentration of  
peracid or hydrogen peroxide or source thereof, most  
preferably the bleaching composition is devoid of peracid  
20 or hydrogen peroxide or source thereof. In addition, it  
is preferred that the presence of alkyl hydroperoxides is  
kept to a minimum in a bleaching composition comprising  
the ligand or complex of the present invention.

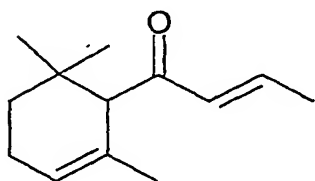
25 The present invention extends to a method of bleaching a  
substrate/textile with a composition of the present  
invention. The method comprising the steps of treating a  
substrate with the bleaching composition in an aqueous  
environment, rinsing the substrate and drying the  
30 substrate.

The present invention also extends to a commercial  
package together with instructions for its use.

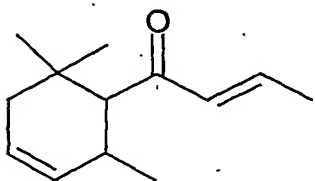
## DETAILED DESCRIPTION OF THE INVENTION

STABLE PURFUMES

The following is a list of perfume components that do not  
5 unduly effect the stability of an "air" bleaching  
catalyst in a bleaching formulation.

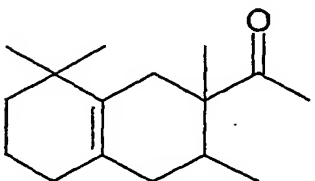


Alpha demascone

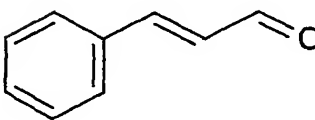


10

Delta demascone

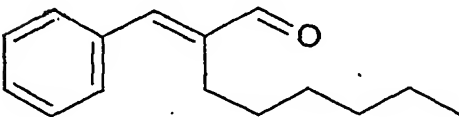


Iso E super



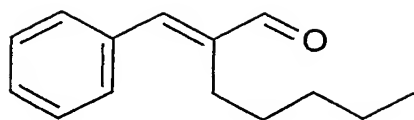
Cinnamic aldehyde

15

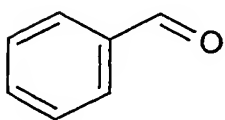


Hexylcinnamic aldehyde

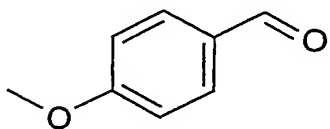




Aldehyde butylcinnamic

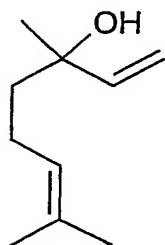


benzaldehyde

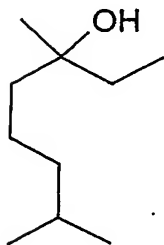


5

anisique aldehyde

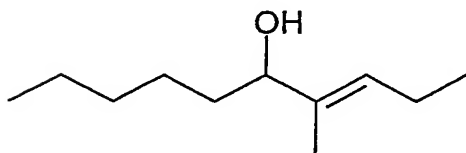


Linalol

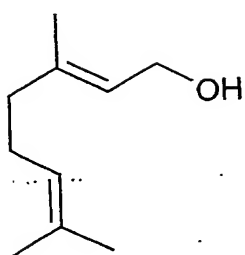


Tetrahydrolinalol

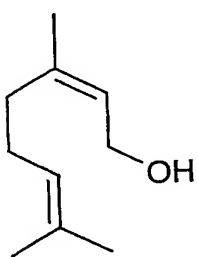
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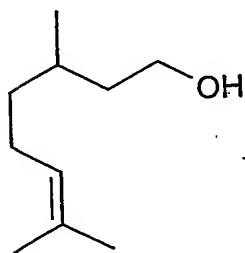
Undecavertol



Geraniol

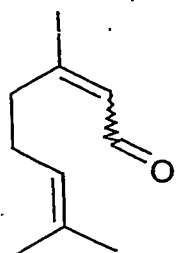


Nerol



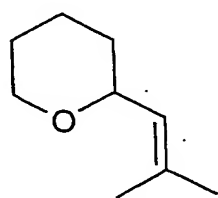
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Citronellol

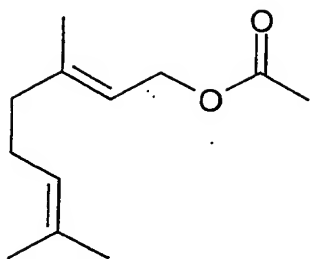


citral

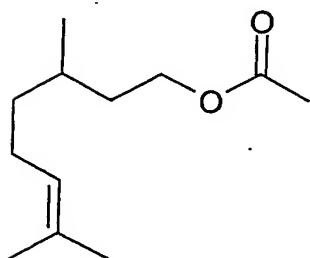
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Oxyde de Rose

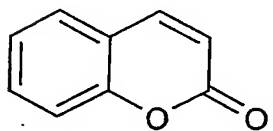


Geranyl acetate

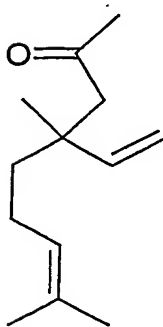


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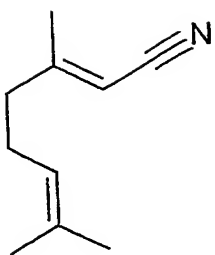
Citronellyl acetate



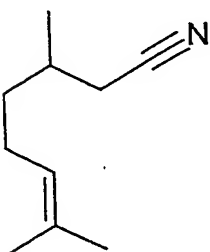
Coumarine



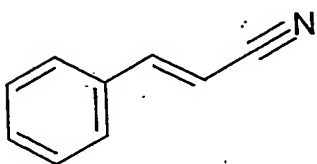
Linalyl acetate



Geranyl nitrile

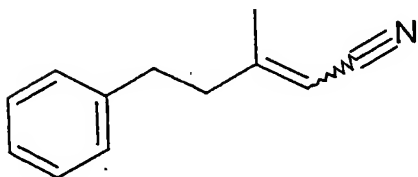


Citronellyl nitrile

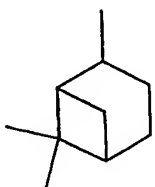


Cinnamonnitrile

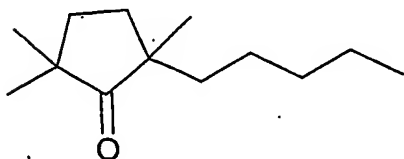
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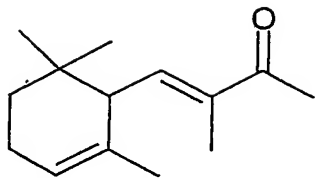
Citronitrile



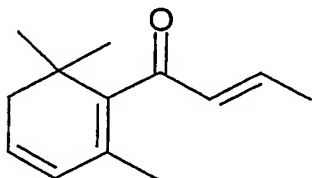
pinane



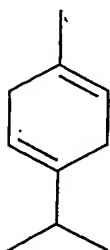
veloutone



Alpha-methylionone



damascenone

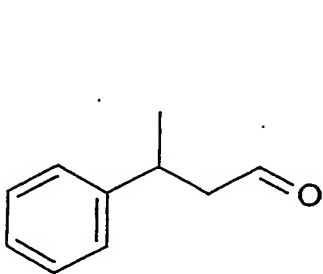


Gamma-terpinene

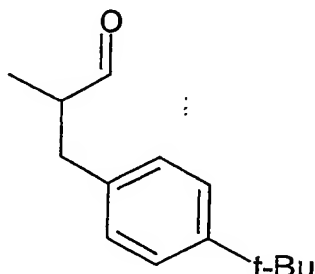
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UNSTABLE PERFUMES

The following is a list of perfume components that unduly effect the stability of an "air" bleaching catalyst in a bleaching formulation.

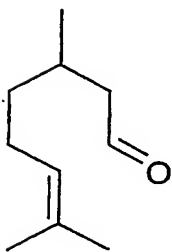


trifernal

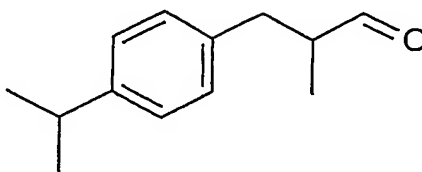


lilial

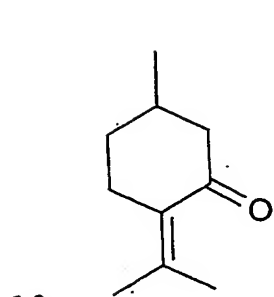
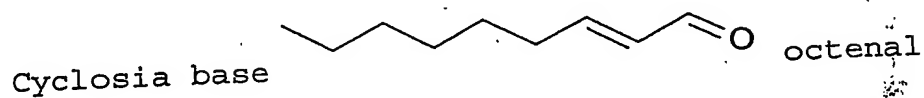
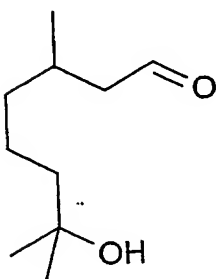
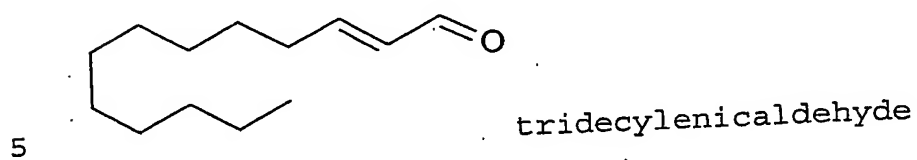
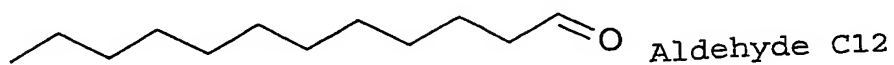
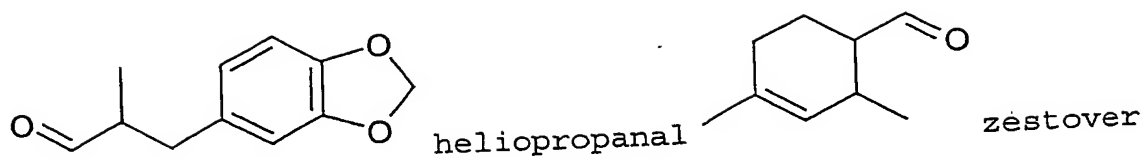
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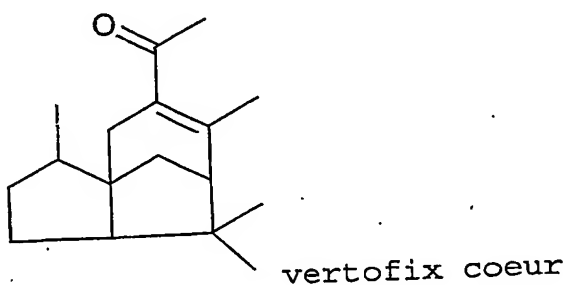
citronellal

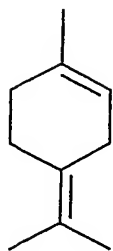


cyclosal.



pulegone





terpinolene

#### THE BLEACH CATALYST

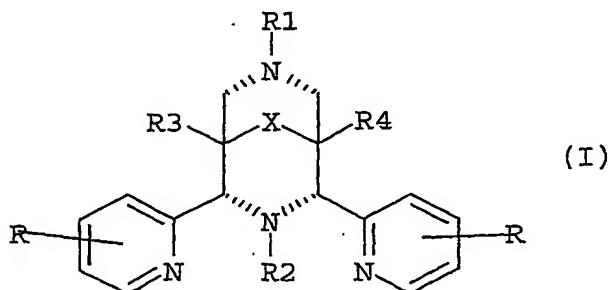
The bleach catalyst per se may be selected from a wide  
5 range of transition metal complexes of organic molecules  
(ligands). In typical washing compositions the level of  
the organic substance is such that the in-use level is  
from 0.05  $\mu\text{M}$  to 50 mM, with preferred in-use levels for  
domestic laundry operations falling in the range 1 to 100  
10  $\mu\text{M}$ . Higher levels may be desired and applied in  
industrial textile bleaching processes. A mixture of  
different catalysts may be employed in the bleaching  
composition.

15 Suitable organic molecules (ligands) for forming  
complexes and complexes thereof are found, for example  
in:

GB 9906474.3; GB 9907714.1; GB 98309168.7, GB  
98309169.5; GB 9027415.0 and GB 9907713.3; DE 19755493;  
20 EP 999050; WO-A-9534628; EP-A-458379; EP 0909809; United  
States Patent 4,728,455; WO-A-98/39098; WO-A-98/39406,  
WO 9748787, WO 0029537; WO 0052124, and WO0060045 the  
complexes and organic molecule (ligand) precursors of  
which are herein incorporated by reference. An example of  
25 a preferred catalyst is a transition metal complex of  
MeN<sub>4</sub>Py ligand (N,N-bis(pyridin-2-yl-methyl)-1,1-  
bis(pyridin-2-yl)-1-aminoethane).

The ligand forms a complex with one or more transition metals, in the latter case for example as a dinuclear complex. Suitable transition metals include for example: manganese in oxidation states II-V, iron II-V, copper I-  
 5 III, cobalt I-III, titanium II-IV, tungsten IV-VI, vanadium II-V and molybdenum II-VI.

An example of a preferred catalyst is a monomer ligand or transition metal catalyst thereof of a ligand having the  
 10 formula (I):

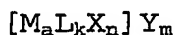


wherein each R is independently selected from: hydrogen,  
 15 F, Cl, Br, hydroxyl, C1-C4-alkylo-, -NH-CO-H, -NH-CO-C1-C4-alkyl, -NH2, -NH-C1-C4-alkyl, and C1-C4-alkyl;  
 R1 and R2 are independently selected from:  
 C1-C4-alkyl,  
 C6-C10-aryl, and,  
 20 a group containing a heteroatom capable of coordinating to a transition metal, wherein at least one of R1 and R2 is the group containing the heteroatom;  
 R3 and R4 are independently selected from hydrogen, C1-C8 alkyl, C1-C8-alkyl-O-C1-C8-alkyl, C1-C8-alkyl-O-C6-C10-aryl, C6-C10-aryl, C1-C8-hydroxyalkyl, and -(CH2)<sub>n</sub>C(O)OR5  
 25 wherein R5 is independently selected from: hydrogen, C1-C4-alkyl, n is from 0 to 4, and mixtures thereof; and,



X is selected from C=O,  $-[C(R_6)_2]_Y-$  wherein Y is from 0 to 3 each R<sub>6</sub> is independently selected from hydrogen, hydroxyl, C1-C4-alkoxy and C1-C4-alkyl.

- 5 The transition metal complex preferably is of the general formula (AI):



- 10 in which:

M represents a metal selected from Mn(II) - (III) - (IV) - (V), Cu(I) - (II) - (III), Fe (II) - (III) - (IV) - (V), Co(I) - (II) - (III), Ti(II) - (III) - (IV), V(II) - (III) - (IV) - (V), Mo(II) - (III) - (IV) - (V) - (VI) and W(IV) - (V) - (VI),

- 15 preferably from Fe(II) - (III) - (IV) - (V);

L represents the ligand, preferably N,N-bis(pyridin-2-yl-methyl)-1,1-bis(pyridin-2-yl)-1-aminoethane, or its protonated or deprotonated analogue;

- 20 X represents a coordinating species selected from any mono, bi or tri charged anions and any neutral molecules able to coordinate the metal in a mono, bi or tridentate manner;

Y represents any non-coordinated counter ion;

a represents an integer from 1 to 10;

- 25 k represents an integer from 1 to 10;

n represents zero or an integer from 1 to 10;

m represents zero or an integer from 1 to 20.

#### BALANCE CARRIERS AND ADJUNCT INGREDIENTS

30

These are generally surfactants, builders, foam agents, anti-foam agents, solvents, and enzymes. The use and amounts of these components are such that the bleaching

composition performs depending upon economics, environmental factors and use of the bleaching composition.

5 The air bleach catalyst may be used in a detergent composition specifically suited for stain bleaching purposes, and this constitutes a second aspect of the invention. To that extent, the composition comprises a surfactant and optionally other conventional detergent  
10 ingredients. The invention in its second aspect provides an enzymatic detergent composition which comprises from 0.1 - 50 % by weight, based on the total detergent composition, of one or more surfactants. This surfactant system may in turn comprise 0 - 95 % by weight of one or  
15 more anionic surfactants and 5 to 100 % by weight of one or more nonionic surfactants. The surfactant system may additionally contain amphoteric or zwitterionic detergent compounds, but this is not normally desired owing to their relatively high cost. The enzymatic detergent  
20 composition according to the invention will generally be used as a dilution in water of about 0.05 to 2%.

In general, the nonionic and anionic surfactants of the surfactant system may be chosen from the surfactants  
25 described "Surface Active Agents" Vol. 1, by Schwartz & Perry, Interscience 1949, Vol. 2 by Schwartz, Perry & Berch, Interscience 1958, in the current edition of "McCutcheon's Emulsifiers and Detergents" published by Manufacturing Confectioners Company or in  
30 "Tenside-Taschenbuch", H. Stache, 2nd Edn., Carl Hauser Verlag, 1981.

Suitable nonionic detergent compounds which may be used include, in particular, the reaction products of compounds having a hydrophobic group and a reactive hydrogen atom, for example, aliphatic alcohols, acids, amides or alkyl phenols with alkylene oxides, especially ethylene oxide either alone or with propylene oxide. Specific nonionic detergent compounds are C<sub>6</sub>-C<sub>22</sub> alkyl phenol-ethylene oxide condensates, generally 5 to 25 EO, i.e. 5 to 25 units of ethylene oxide per molecule, and the condensation products of aliphatic C<sub>8</sub>-C<sub>18</sub> primary or secondary linear or branched alcohols with ethylene oxide, generally 5 to 40 EO.

Suitable anionic detergent compounds which may be used are usually water-soluble alkali metal salts of organic sulphates and sulphonates having alkyl radicals containing from about 8 to about 22 carbon atoms, the term alkyl being used to include the alkyl portion of higher acyl radicals. Examples of suitable synthetic anionic detergent compounds are sodium and potassium alkyl sulphates, especially those obtained by sulphating higher C<sub>8</sub>-C<sub>18</sub> alcohols, produced for example from tallow or coconut oil, sodium and potassium alkyl C<sub>9</sub>-C<sub>20</sub> benzene sulphonates, particularly sodium linear secondary alkyl C<sub>10</sub>-C<sub>15</sub> benzene sulphonates; and sodium alkyl glyceryl ether sulphates, especially those ethers of the higher alcohols derived from tallow or coconut oil and synthetic alcohols derived from petroleum. The preferred anionic detergent compounds are sodium C<sub>11</sub>-C<sub>15</sub> alkyl benzene sulphonates and sodium C<sub>12</sub>-C<sub>18</sub> alkyl sulphates. Also applicable are surfactants such as those described in

EP-A-328 177 (Unilever), which show resistance to salting-out, the alkyl polyglycoside surfactants described in EP-A-070 074, and alkyl monoglycosides.

- 5 Preferred surfactant systems are mixtures of anionic with nonionic detergent active materials, in particular the groups and examples of anionic and nonionic surfactants pointed out in EP-A-346 995 (Unilever). Especially preferred is surfactant system that is a mixture of an  
10 alkali metal salt of a  $C_{16}$ - $C_{18}$  primary alcohol sulphate together with a  $C_{12}$ - $C_{15}$  primary alcohol 3-7 EO ethoxylate.

The nonionic detergent is preferably present in amounts greater than 10%, e.g. 25-90% by weight of the surfactant  
15 system. Anionic surfactants can be present for example in amounts in the range from about 5% to about 40% by weight of the surfactant system.

One skilled in the art will appreciate that some  
20 adventitious peroxy species may be in the composition nevertheless it is most preferred that the bleaching composition of the present invention has less than 1%, preferably less than 0.1%, most preferably less than 0.01%, of a peroxy species present. These adventitious  
25 peroxy are predominantly alkyl hydroperoxides formed by autoxidation of the surfactants.

The composition may contain additional enzymes as found in WO 01/00768 A1 page 15, line 25 to page 19, line 29,  
30 the contents of which are herein incorporated by reference.

Builders, polymers and other enzymes as optional ingredients may also be present as found in WO0060045.

Suitable detergency builders as optional ingredients may  
5 also be present as found in WO0034427.

The composition of the present invention may be used for laundry cleaning, hard surface cleaning (including cleaning of lavatories, kitchen work surfaces, floors,  
10 mechanical ware washing etc.). As is generally known in the art, bleaching compositions are also employed in waste-water treatment, pulp bleaching during the manufacture of paper, leather manufacture, dye transfer inhibition, food processing, starch bleaching,  
15 sterilisation, whitening in oral hygiene preparations and/or contact lens disinfection.

In the context of the present invention, bleaching should be understood as relating generally to the  
20 decolourisation of stains or of other materials attached to or associated with a substrate. However, it is envisaged that the present invention can be applied where a requirement is the removal and/or neutralisation by an oxidative bleaching reaction of malodours or other  
25 undesirable components attached to or otherwise associated with a substrate. Furthermore, in the context of the present invention bleaching is to be understood as being restricted to any bleaching mechanism or process that does not require the presence of light or activation  
30 by light.

BLEACHING FORMULATION

The present invention has particular utility for liquid formulations because in contrast to a solid heterogeneous mixture in a liquid formulation the contact between  
5 individual components are more intimate and hence more susceptible to degradation due to interaction of components.

There are many commercial liquid formulations for  
10 detergents and rinse conditioners or other liquid products that may be enhanced by conferring a bleaching ability to the liquid formulation. As will be evident to one skilled in the art the present invention is applicable to known liquid formulations and liquid  
15 formulations to be developed.

The level of the catalyst in a commercial bleaching composition is from 0.0001 to 0.6 wt/wt %, preferably  
0.001 to 0.15 wt/wt %, most preferably 0.01 to 0.1 wt/wt  
20 %. We have found that the level of catalyst is optimum between 0.03 to 0.09 wt/wt % in the commercial bleaching composition.

The present invention extends to both isotropic and  
25 complex liquid compositions and formulations a brief discussion of which follows. Some isotropic formulations are termed 'micro-emulsion' liquids that are clear and thermodynamically stable over a specified temperature range. The 'micro-emulsion' formulation may be water in  
30 oil, or oil in water emulsions. Some liquid formulations are macro-emulsions that are not clear and isotropic. Emulsions are considered meta-stable. Concentrated, clear compositions containing fabric softening actives have

been disclosed in WO 98/08924 and WO 98/4799, both Procter & Gamble. Such compositions comprise biodegradable fabric conditioners. However, both disclose compositions comprising water miscible solvents that do not form water-in-oil micro-emulsions. Clear fabric conditioning compositions have also been disclosed in EP 730023 (Colgate Palmolive), WO 96/19552 (Colgate Palmolive), WO 96/33800 (Witco Co.), WO 97/03170 (Procter & Gamble), WO 97/03172 (Procter & Gamble), WO 97/03169 (Procter & Gamble), US 5492636 (Quest Int.) and US 5427697 (Procter & Gamble). Liquid formulations of the present invention may contain for example; monoethoxy quats; AQAs and bis-AQAs; cationic amides; cationic esters; amino/diamino quats; glucamide; amine oxides; ethoxylated polyethyleneimines; enhancement polymers of the form linear amine based polymers, e.g. bis-hexamethylenetriamine; polyamines e.g. TETA, TEPA or PEI polymers.

The liquid may be contained within a sachet as found in WO02/068577.

The following is an example of a liquid bleaching composition to which an organic substance which forms a complex with a transition metal for bleaching a substrate with atmospheric oxygen may be added together with the selected stable perfume components.

Ingredient	Wt%
Nonionic surfactant	26.6
Monopropylene glycol	5.5
Pigment premix	0.017
Glycerol	21.36
Monoethanolamine	7.56
Oleic fatty acid	13.10
Water	Up to 100
Linear alkyl benzene sulfonate	20.1
Perfume	1.6
Protease Enzyme	1.0

The following are further examples of commercial liquid formulations that the present invention may be incorporated into: Wisk™ liquid USA, 1999, OMO™ liquid NL, 1999, OMO-liquido™ Brazil, 1999, and Rinse conditioner (Robijn™ - NL). In this regard, that catalyst is added together with the selected stable perfume components.

The following is a further example of a commercial liquid formulation that the present invention may be incorporated into by adding the catalyst together with the selected stable perfume components. The commercial liquid formulation has a pH of 7.



Sodium citrate:	3.2 %
Polypropylene glycol:	4.75 %
LAS-acid:	5.6 %
NI 25 9 EO:	6.6 %
LES (anionic surfactant):	10.5 %
Borax:	2.30 %
Sorbitol:	3.35 %
Alcosperce 725:	0.30 %
Coconut fatty acid:	0.73 %
Monoethanolamine:	0.20 %
Fluorescer:	0.125 %
Enzymes	-
Perfume/dye	-

It is most preferred that when the catalyst is in a  
5 liquid composition, the liquid composition has a pH of 7  
or below irrespective.

The following catalyst was used in the experiments 9,9-  
dihydroxy-2,4-di-(2-pyridyl)-3-methyl-7-(pyridin-2-  
10 ylmethyl)-3,7-diaza-bicyclo[3.3.1]nonane-1,5-  
dicarboxylate Iron (II) dichloride was prepared as  
described by Heidi Borzel, Peter Comba, Karl S.  
Hagen, Yaroslav D. Lampeka, Achim Lienke, Gerald Linti,  
Michael Merz, Hans Pritzkow, Lyudmyla V. Tsymbal in  
15 Inorganica Chimica Acta 337 (2002) 407 - 419. WO0248301  
provides synthetic details of similar compounds.

Liquid compositions containing 0.03 % wt/wt of a bleach  
component and 0.06 % wt/wt of individual perfume

components are stored in glass vials for 14 days at 37 °C in a cabinet.

The activities were determined at 40 °C in a H<sub>2</sub>O<sub>2</sub> containing NaH<sub>2</sub>PO<sub>4</sub>.H<sub>2</sub>O pH7 buffer and Acid Blue 45 (CAS No. 2861-02-1) as substrate using the following protocol.

Samples of 70 mg liquid were diluted in 10.00 ml MilliQ water. We added 45 µl of this solution to an assay of 230 µL containing 20 mM H<sub>2</sub>O<sub>2</sub>, 75 µM Acid blue 45 and 54 mM NaH<sub>2</sub>PO<sub>4</sub>.H<sub>2</sub>O pH7 buffer.

The solutions were mixed and pre incubated for 1 min at 40 °C. The changes in absorbance at 600 nm were measured for 8 min at 40 °C using a spectrophotometer.

The absolute changes in absorbance were correlated to activities obtained with freshly prepared calibration samples. The measured activities were expressed as µMol/l/.

Table 1: The residual activity of 0.03 % wt/wt of a transition metal catalyst after 2 weeks storage at 37 °C.

Nr	Perfume component (0.06%)	Residual Activity (µMol/l)
1	No addition	1.77
2	Alpha demascone	1.64
3	Delta demascone	1.56
4	Iso E super	1.73
5	Cinnamic aldehyde	1.76
6	Hexylcinnamic aldehyde	1.73
7	Aldehyde butylcinnamic	1.60

8	Benzalaldehyde	1.76
9	Anisique aldehyde	1.70
10	Linalol	1.66
11	Tetrahydrolinalol	1.96
12	Undecavertol	1.76
13	Geraniol	1.73
14	Nerol	1.73
15	Citronellool	1.66
16	Citral	1.63
17	Oxyde de Rose	1.79
19	Geranyl acetate	1.83
20	Citronellyl acetate	1.60
21	Coumarine	1.79
22	Linalyl acetate	1.70
23	Geranyl nitrate	1.76
24	Citronellyl nitrile	1.53
25	Cinnamonitrile	1.79
26	Citronitrile	1.83
27	Aldehyde Amylcinnamique	1.80
29	Methylanthranilate	1.70
30	di-Ethyl-Anthranilate	1.86
31	Methyl-n-Acetyl-anthranilate	1.73
33	Diphenyloxide	1.89
34	Verdox	1.79
35	Benzylacetate	1.79
36	Diola	1.86
37	Orange Cristals	1.73
38	Peonile	1.79
39	Clonal	1.70
40	Limonene	1.76
41	Camphor	1.60

42	Anthranilate	1.83
43	Di-isobutylanthranilate	1.60
44	Verdylacetate	1.64
45	Trifernal	0.26
46	Lilial	0.22
47	Citronellal	0.09
48	Cyclosal	0.26
49	Heliopropanal	0.45
50	Zestover	0.55
51	Aldehyde C12	0.45
52	Tridecylenicaldehyde	0.65
53	Cyclosia base	0.52
54	Octenal	0.81
55	Pulegone	0.32
56	Vertofix coeur	0.65
57	Veloutone	1.40
58	Alpha-methylionene	1.14
59	Demascenone	1.01
60	Terpinolene	0.62
61	Gamma-Terpinene	0.98
62	Pinane	1.30

We claim:

1. A bleaching composition comprising:

5 (a) an organic substance which forms a complex with a transition metal for bleaching a substrate with atmospheric oxygen, the bleaching composition upon addition to an aqueous medium providing an aqueous bleaching medium substantially devoid of a peroxygen  
10 bleach or a peroxy-based or peroxy-generating bleach system;

(b) between 0.001 to 3 wt/wt % of a perfume composition;  
and,

15

(c) the balance carriers and adjunct ingredients to 100 wt/wt % of the total bleaching composition,

wherein the bleaching activity of the liquid beaching  
20 composition is greater by a factor of at least 10, in comparison to a same bleaching composition in which a molar equivalent amount of citronellal is present as the perfume composition, after a period of storage at 37 °C for 14 days as measured by exhibited bleaching activity  
25 of the transition metal catalyst towards acid blue 45 in the presence of hydrogen peroxide or as measured by exhibited bleaching activity of the transition metal catalyst towards beta-carotene in absence of peroxy species.

30

2. A bleaching composition comprising according to claim 1, wherein the beaching composition has a greater bleaching activity by a factor of at least 10.

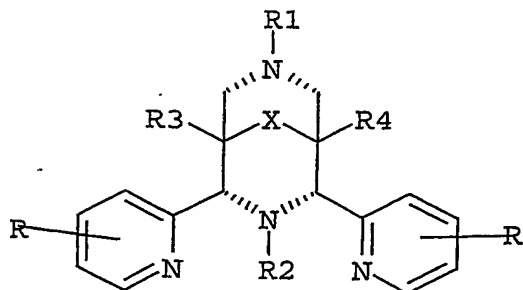
3. A bleaching composition comprising according to claim 1, wherein the perfume comprises a perfume component selected from the group consisting of: Alpha demascone, Delta demascone, Iso E super, Cinnamic aldehyde, Hexylcinnamic aldehyde, Aldehyde butylcinnamic, benzaldehyde, anisique aldehyde, Linalol, Tetrahydrolinalol, Undecavertol, Geraniol, Nerol, Citronellol, citral, Oxyde de Rose, Geranyl acetate, Citronellyl acetate, Coumarine, Linalyl acetate, Geranyl nitrate, Citronellyl nitrile, Cinnamonnitrile, and Citronitrile, Aldehyde Amylcinnamique, Methylanthranilate, di-ethyl-Anthranilate, Methyl-n-Acetylanthranilate, Diphenyloxide, Verdox, Benzylacetate, Diola, Orange Cristals, Peonile, Clonal, Limonene, Camphor, Anthranilate, Di-isobutyl-Anthranilate, Verdyl Acetate, pinane, veloutone, alpha-methylionone, and damascenone.

4. A bleaching composition according to any one of claims 1 to 3, comprising between 0.05 to 2 wt/wt % of a perfume composition.

5. A liquid bleaching composition according to any preceding claim, wherein the bleaching composition has a pH of 10 or below.

6. A liquid bleaching composition according claim 5, wherein the liquid bleaching composition has a pH in the range of 6 to 9.

7. A bleaching composition according to any preceding claim, wherein the organic substance is of the



form:

5 8. A method of bleaching a textile stain, comprising the steps of treating a substrate with the bleaching composition as defined in any preceding claim in an aqueous environment, rinsing the substrate and drying the substrate.

**Abstract of the Invention**

The present invention concerns the preservation of a catalyst in a bleaching composition. The bleaching composition is substantially devoid of a peroxygen bleach  
5 or a peroxy-based or peroxy-generating bleach system.



PPT/EP004010324

